

Response to Official Action

Dated 22 June 2006

Re: USSN 10/774,002

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REMARKS/ ARGUMENTS

The Examiner makes an obviousness type double patenting rejection of claim 1 in the present application asserting that "claim 1 of application 10/774,001 is broader in scope' than is claim 1 of the present application.

With all due respect, that assertion is untrue. Claims 1 of application 10/774,001 recites that "said gain regions subjected, in use, to electric fields, in order [to]produce gain in the gain regions ...". Moreover, claim 1 of application 10/774,001 is being amended to recite: "said gain regions being responsive, in use, to electric fields, in order produce gain in the gain regions relative to the passive/lossy region or regions".

This limitation, whether in its original ("subjected") form or its amended ("responsive") form, makes claim 1 of application 10/774,001 narrower than claim 1 of the present application. That limitation, whether in its original ("subjected") form or its amended ("responsive") form, is also not supported by the present disclosure, so that claim could not even properly reside in the present application, much less dominate claim 1 of this application.

Application 10/774,001 specifically deals with electrical pumping of devices and systems (and its claim 1 recites "...subjected, in use, to electric fields, in order [to] produce gain ..."). On the other hand, Claim 1 of the present application (10/774,002) describes a gain medium with "lossy regions being lossy at a signal wavelength of the gain medium and isolating the gain regions from one another."

The rejection is improper and should be withdrawn.

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The Examiner rejected claims 1-6 under 35 U.S.C. 112, second paragraph.

Claim 1 has been amended to recite that the layer of gain material is "disposed on said reflecting layer". This amendment should deal fully with the rejection of claims 1-6 under 35 U.S.C. 112, second paragraph.

The Examiner rejected claims 1, 5-7, 11, 15-17, 20, 22 and 23 under 35 U.S.C. 102 as being anticipated by US Patent 5,926,494 to Pepper. This grounds for rejection is respectfully traversed. The prior art (Pepper) includes the general statement: "fragmented gain regions can be realized electrically, by attaching an electrode array in a pattern..." The present disclosure, does not deal with electrically pumping the gain medium, but, rather with optically pumping the same. Also, the quote by the Examiner "... segmented gain regions can be implemented as before ..." pertains to the prior art of Pepper, namely, the use of optical patterns that pump uniform gain layers (i.e., layers without any lateral spatial variations in composition and/or structural fabrication). In bright contrast, the present disclosure allows (and assumes) a uniform optical pump beam, which pumps a gain medium that has lateral spatial variations or regions. Hence, in the present disclosure, the regions of gain and loss are determined by the structure of the gain medium, and, not by the configuration optical pump beam. The prior art does not anticipate the present invention. It focuses on techniques to modify the pump beam, and, does not address the gain medium.

Claim 1 recites, *inter alia*, "said layer of gain material comprising a plurality of optical gain regions and a plurality of optical lossy regions, said plurality of optical lossy regions being lossy at a signal wavelength of the gain medium and isolating the plurality of optical gain regions from one another." That structure is not shown in Pepper '494.

Claim 7 recites, *inter alia*, “partitioning said monolithic gain element into a plurality of gain regions and lossy regions, the lossy regions scattering light away from monolithic gain element in order to minimize the creation of localized hot spots when the monolithic gain element is pumped by an optical source”. That step is not shown in Pepper ‘494.

Claim 11 recites, *inter alia*, “a layer of gain material comprising a plurality of gain regions and a plurality of lossy regions, said plurality of lossy regions isolating the plurality of gain regions from one another.” That structure is not shown in Pepper ‘494.

Claim 17 recites, *inter alia*, “a plurality of monolithic gain medium elements forming a planar array having a lossy configuration to minimize modes of operation that are substantially transverse to the planar array, while maintaining a high-gain path for a mode of operation that is substantially normal to the planar array”. That structure is not shown in Pepper ‘494. Moreover, the official action also did not deal the “plurality of amplifier stages” limitation. Where is that shown in Pepper ‘494?

Regarding the obviousness rejections of Claims 5, 15, 20, and 22, again, the prior art (Pepper ‘494) deals only with the optical properties of the pump beam. Given the teachings of the prior art (changing the pump-beam optical profile), an optician skilled in the art would not be motivated to modify the material structure of the gain medium. One who designs optical elements and telescopes would not consider methods of “optical damage,” “enhanced scattering,” or “optical absorption.” If anything, the optician would desire to minimize optical damage and losses in a given system.

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The Examiner is thanked for the indication of allowable subject matter in terms of claims 3, 4, 9, 13, 19 and 21, but it is respectfully submitted that all of the claims in this application patentably define over the cited art.

Withdrawal of the rejections and allowance of the claims are respectfully requested.

The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to deposit account no. 12-0415. In particular, if this response is not timely filed, then the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136 (a) requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee due in connection therewith may be charged to deposit account no. 12-0415.

I hereby certify that this correspondence is being deposited with the United States Post Office with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

22 September 2006

(Date of Transmission)

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Respectfully submitted,



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